

MPAs
TANZANIA

SAMUDRA Monograph

The Social Dimensions of Marine Protected Areas: A Case Study of the Mafia Island Marine Park in Tanzania



Rosemarie Nyigulila Mwaipopo



International Collective in Support of Fishworkers
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Women seaweed farmers of Mafia Island, Tanzania,
produce valuable carrageenan but are paid very low prices

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Contents

Acronyms and Abbreviations.....	v
Acknowledgements.....	vii
Preface	ix
Introduction	1
Natural Resource Protected Areas in Tanzania: A Brief History	2
Marine Parks in Tanzania.....	6
Policy and Institutional Framework.....	7
The Mafia Island Marine Park: A Case Study.....	9
Conclusions: Responsibilities and Rights of Local Fishers	32
Endnotes	35
References	36

Box

Box: Marine Parks and Reserves in Tanzania.....	6
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List of Maps

Map 1: Map of Tanzania Showing Location of Mafia Island.....	3
Map 2: National Parks in Mainland Tanzania.....	4
Map 3: Boundaries of MIMP.....	10

List of Tables

Table 1: Stakeholders in the MIMP Fisheries.....	15
Table 2: Alternative Income-generating Activities, 2000-2006.....	23
Table 3: Destructive/Unlicensed Fishing Activities within Mafia's Waters, 2003-2007.....	24
Table 4: MIMP Visitor Fee Statistics, 2000-06.....	29
Table 5: Fish Landings at Kilindoni Bay, 2000-2007.....	31

Acronyms and Abbreviations

BMU	beach management unit
CBD	Convention on Biological Diversity
CCM	Chama Cha Mapinduzi (Revolutionary State Party)
COP7	Seventh Meeting of the Conference of Parties (of the CBD)
CUF	Civic United Front
EAfro	East African Fisheries Research Organization
GMP	general management plan
GOMBR	Gulf of Mannar Biosphere Reserve
GOMNP	Gulf of Mannar National Park
hp	horsepower
HQ	headquarters
ICSF	International Collective in Support of Fishworkers
IMS	Institute of Marine Sciences
in	inch/inches
IUCN	International Union for Conservation of Nature
kg	kilogramme
l	litre
LTBP	Lake Tanganyika Biodiversity Project
LVEMP	Lake Victoria Environment Management Project
MACEMP	Marine and Coastal Environment Management Programme
MANREC	Ministry of Agriculture, Natural Resources, Environment and Co-operatives
MBCA	Menai Bay Conservation Area
MDC	Mafia District Council
MER	marine extractive reserve
MIMP	Mafia Island Marine Park
mn	million
MNRP	Management of Natural Resources Programme
MNRT	Ministry of Natural Resources and Tourism
MPA	marine protected area
MPRU	Marine Parks and Reserves Unit
n a	not available
NEMC	National Environment Management Council
NGO	non-governmental organization

NOAA	National Oceanic and Atmospheric Administration (of the US)
NORAD	Norwegian Agency for Development Co-operation
PA	protected area
PA PoW	Protected Areas Programme of Work (of the CBD)
PoW PA	Programme of Work on Protected Areas (of the CBD)
RIPS	Rural Integrated Programme Support
RUC	resident user certificate
SOZOCO-MAE	Southern Zone Confederation for the Protection of the Marine Environment
sq km	square kilometre(s)
TANAPA	Tanzania National Parks Authority
TSh	Tanzanian shilling
US	United States
US\$	US Dollar
URT	United Republic of Tanzania
VEU	village enforcement unit
VLC	village liaison committee
VG	village government
WCPA	World Commission on Protected Areas (of IUCN)
WIOMSA	Western Indian Ocean Marine Scientists Association
WWF	World Wide Fund for Nature

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PREFACE

As the conservation of marine resources becomes a growing global priority, the concept of marine protected areas (MPAs) is being widely propagated. Since most MPAs are located in coastal areas of great biodiversity, their development has direct relevance and concern to the livelihoods, culture and survival of small-scale and traditional fishing and coastal communities.

An MPA is considered to be any coastal or marine area in which certain uses are regulated to conserve natural resources, biodiversity, and historical and cultural features. The Convention on Biological Diversity (CBD) defines an MPA as “any defined area within or adjacent to the marine environment, together with its overlying waters and associated flora, fauna, and historical and cultural features, which has been reserved by legislation or other effective means, including custom, with the effect that its marine and/or coastal biodiversity enjoys a higher level of protection than its surroundings”.

As an area-based management tool, MPAs are considered useful in implementing both the ‘ecosystem approach’ and the ‘precautionary approach’, since their design involves managing pressures from human uses by adopting a degree of protection, which can range from strict protection, where all use activities are barred, to less stringent measures like sanctioning areas where multiple uses are allowed and regulated.

In 2004, the Seventh Meeting of the Conference of Parties (COP7) of the CBD agreed that marine and coastal protected areas, implemented as part of a wider marine and coastal management framework, are one of the essential tools for the conservation and sustainable use of marine and coastal biodiversity. The meeting noted that marine and coastal protected areas have been proven to contribute to (a) protecting biodiversity; (b) sustainable use of components of biodiversity; and (c) managing conflict, enhancing economic well-being and improving the quality of life. Following on this, Parties to the CBD subsequently agreed to bring at least 10 per cent of the world’s marine and coastal ecological regions under protection by 2012. In 2006, only an estimated 0.6 per cent of the world’s oceans were under protection.

Protected areas (PAs) need to be seen not just as sites copious in biodiversity but also as regions historically rich in social and cultural interactions, which often have great importance for local livelihoods. In practice, however, MPAs

have increasingly become tools that limit, forbid and control use-patterns and human activity through a structure of rights and rules. While numerous studies have examined the ecological and biological impacts of MPAs, few have focused on their social implications for communities and other stakeholders in the area who depend on fisheries resources for a livelihood. A particular MPA may be both a “biological success” and a “social failure”, devoid of broad participation in management, sharing of economic benefits, and conflict-resolution mechanisms. Clearly, for MPAs to be effectively managed, it is essential to consider the social components needed for the long-term benefits of coastal communities.

It is in this context that the International Collective in Support of Fishworkers (ICSF) commissioned studies in six countries to understand the social dimensions of implementing MPAs, with the following specific objectives:

- to provide an overview of the legal framework for, and design and implementation of, MPAs;
- to document and analyze the experiences and views of local communities, particularly fishing communities, with respect to various aspects of MPA design and implementation; and
- to suggest ways in which livelihood concerns can be integrated into the MPA Programme of Work, identifying, in particular, how local communities, particularly fishing communities, could engage as equal partners in the MPA process.

The studies were undertaken in Brazil, India, Mexico, South Africa, Tanzania and Thailand. Besides the Mexico study, the rest were based on primary data collected from selected MPA locations within each country, as listed in the table opposite.

The studies were undertaken in the context of Programme Element 2 on governance, participation, equity and benefit sharing in CBD’s Programme of Work on Protected Areas (PoW PA, also referred to as PA PoW), which emphasizes the full and effective participation of local and indigenous communities in protected area management. Taken together, the studies provide important insights into the MPA implementation process from a fishing-community perspective, particularly on issues of participation.

It is clear from the studies that the most positive examples of livelihood-sensitive conservation come from Brazil, where communities are in the forefront of demanding, and setting up, sustainable-use marine extractive reserves (MERs). Communities there are using PAs to safeguard their livelihoods, against, for example, shrimp farms and tourism projects. The Brazil study also highlights the many challenges faced in the process, which are related, among other things, to the

need for capacity building of government functionaries and communities; funding; strong community/fishworker organizations; an interdisciplinary approach; and integration of scientific and traditional knowledge.

Country	Case Study Locations
Brazil	<ul style="list-style-type: none"> • Peixe Lagoon National Park, Rio Grande do Sul • Marine Extractive Reserve (MER) Mandira, São Paulo • Marine Extractive Reserve (MER) Corumbau, Bahia
India	<ul style="list-style-type: none"> • Gulf of Mannar National Park (GOMNP) and Gulf of Mannar Biosphere Reserve (GOMBR), Tamil Nadu • Malvan (Marine) Wildlife Sanctuary, Maharashtra
South Africa	<p>Five MPAs in three of the country's four coastal provinces, namely:</p> <ul style="list-style-type: none"> • Langebaan Lagoon MPA • Maputaland MPA • St Lucia MPA • Tsitsikamma MPA • Mkambati MPA
Tanzania	<ul style="list-style-type: none"> • Mafia Island Marine Park (MIMP)
Thailand	<ul style="list-style-type: none"> • Had Chao Mai Marine National Park, Trang Province, Andaman Coast • Ra Island, Prathong Island, Prathong Sub-district, Kuraburi District, Phang Nga Province, Andaman Coast

On the other hand, the studies from India, Mexico, South Africa Tanzania and Thailand indicate that communities do not consider themselves equal partners in the MPA process. While, in all cases, there have been recent efforts to enhance community participation, in general, participation tends to be instrumental—communities are expected to participate in implementation, but are not part of the process of designing and implementing management initiatives. The studies also document clear costs to communities in terms of livelihood options lost, expulsion from traditional fishing grounds and living spaces, and violation of human/community rights. The affected communities regard alternative livelihood options as providing limited, if any, support, and, in several cases, as in South Africa, Tanzania and Thailand, they do not perceive substantial benefits from tourism initiatives associated with the PAs. There tends to be a resistance to MPAs among local communities, a mistrust of government and non-governmental organizations (NGOs) that lead such processes, and violations of rules and regulations, undermining the effectiveness of the MPA itself.

The studies in this series of *SAMUDRA Monographs* stress that there is a strong case for putting in place, or strengthening, a legal framework for supporting community rights to manage resources, building the capacity of both governments and communities, strengthening local organizations, and enhancing institutional coordination. They also highlight the need for more, independent studies on MPA processes from the community perspective, given that the few existing studies on social dimensions of MPA implementation have mainly been undertaken by MPA proponents themselves. Where clear examples of violations of community rights, and unjust costs on communities are identified, easily accessible redressal mechanisms need to be put in place, nationally and internationally

Empowering indigenous and local fishing communities to progressively share the responsibility of managing coastal and fisheries resources, in keeping with the CBD's PA PoW, would undoubtedly meet the goals of both conservation and poverty reduction. This is the challenge before us. The future of both effective conservation and millions of livelihoods is at stake.

Chandrika Sharma
Executive Secretary, ICSF

The Social Dimensions of Marine Protected Areas: A Case Study of the Mafia Island Marine Park in Tanzania

Some people perceive that MPAs restrict fishing and fishers...This is wrong...MPAs usually regulate the use of resources by using many options.

— MIMP Warden, 15 December 2007

INTRODUCTION

In many ways, the creation of MPAs implies the institution of new regulations for marine-resource use. Depending on the nature of their establishment, they also affect people's rights of access to resources, and their capacity to engage in, and benefit from, management processes. Where traditional ways of management have been eroded, and threats to the marine environment are high, MPAs may provide a concerted intervention for addressing abuse and destruction of the environment, and may minimize conflicts in access. However, since there is a shortage of experience in people-initiated MPAs (Chuenpagdee et al., 2002), most MPAs in countries like Tanzania have been State-led interventions, where negotiations on maintaining a balance between people's healthy livelihoods and the conservation of resources have usually been delicate and indeed may lead to people's loss of access to common-property resources, with resulting impoverishment, disempowerment and marginalization, to varying extents. The ensuing social implications arise from the extent to which such processes have taken on board the contexts within which people live their lives, their diverse relationships with one another and with resources, how they articulate management interventions in relation to their rights, and their varied roles in the attendant processes.

Using the case of the MIMP in Mafia District, Tanzania, this study discusses the social dimensions of MPAs through an analysis of the socioeconomic, political and cultural contexts within which Mafia people live their lives, how they feel obligated to respond to management interventions, and the extent to which the process becomes a threat or an opportunity for a meaningful livelihood. Information for the study was collected through documentary surveys and interviews with residents of Kiegeani and Jibondo villages, officials from the Marine Park Unit in Dar es Salaam, and the MIMP management office in Mafia. Several proposals are then made through which coastal communities could be facilitated to engage better in protecting the marine ecosystem and their rights, which are dependent on the same environment.

NATURAL RESOURCE PROTECTED AREAS IN TANZANIA: A BRIEF HISTORY

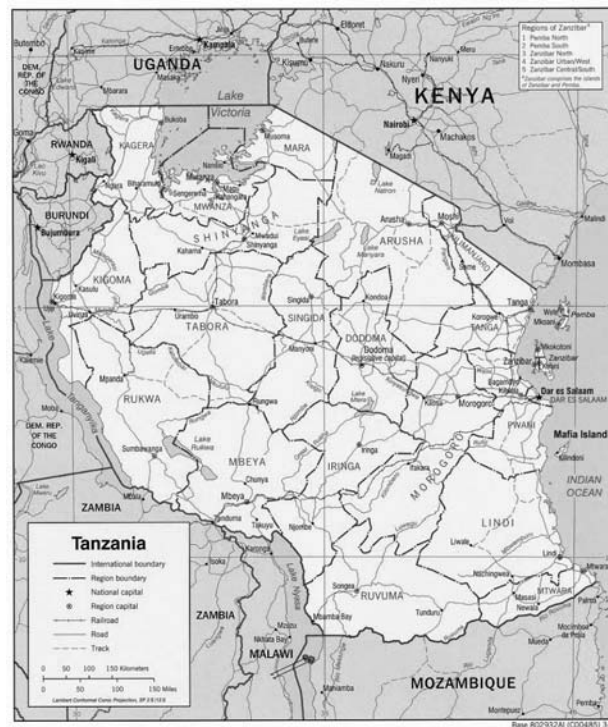
Tanzania has a long history in setting up PAs for natural resources, most of which have been terrestrial-based parks and reserves in wildlife and forested areas, and many of which were established during the colonial period (Levine, 2003; Neumann, 1990, 1997). These PAs contribute significantly to the national economy through international tourism and local employment. Of the country's total area of 945,234 sq km, 375,000 sq km, or 40 per cent of its territory, are under designated PAs (excluding the MPAs)¹. The PAs include national parks (40 per cent), game reserves (15 per cent), game controlled areas (8 per cent) and the Ngorongoro conservation area (1 per cent), while about 15 per cent are forest reserves (Mwandosya, 2007:2). Those designated as national parks fall under the jurisdiction of the Tanzania National Parks Authority (TANAPA).

The social implications of the establishment of PAs, however, need to be situated within changing national and international development agendas and priorities for natural resource management. The national parks established during the colonial period were based on approaches that initially conceived of nature parks as exclusive for protection and preservation, and the use of natural resources in these parks was consolidated within a framework in which people's rights to these resources depended on the discretion of a governing body outside their domain (Neumann, 1997)².

Most of such protectionist ideals—informed with a bias towards ecological principles rather than social values—manifested as interventions that often conflicted with local people's ways of using resources, sometimes restricting their abilities to maintain their livelihood practices and even their capacity to engage in cultural recreation and social networking (Neumann, 1990; Sunseri, 2003). Post-independence (1961) conservation strategies followed suit as natural resource

management became centralized under the State, with an eye on the economic gains that the country's natural endowments could generate from activities such as tourism. One example is the coastal Saadani Game Reserve, established in 1974 on the edges of the Indian Ocean. Although documented history indicates that local residents encouraged the protection of wildlife in the area, to eliminate uncontrolled recreational hunting, the subsequent demarcation of the boundaries of the reserve squeezed the historical settlement of Saadani to a mere 0.25-sq km village, stretching just a kilometre or so from the River Mvave southwards towards River Wami in Bagamoyo District. In addition, restrictions on land for cultivation, and on the use of wildlife and forest resources, except the marine environment, were instituted (Mwaipopo-Ako, 2001). The management of the Saadani reserve has since been taken over by the TANAPA, whose policies have only led to more restrictions on people's use of the coastal and marine environment of the area.

Map 1: Map of Tanzania Showing Location of Mafia Island



Source: Courtesy of the General Libraries, The University of Texas at Austin

More flexible approaches, in terms of people's participation in natural resource management, were experienced from the 1980s, when advocacy for sustainable utilization of resources was defined in terms of "use and conserve" (Brundtland

Report, 1987). This was buttressed by the institution of a relatively decentralized system for natural resource governance that at least facilitated people's participation, empowerment, development and sustainability (Levine, 2003; Mwaipopo-Ako, 2001; URT, 2003). However, the regulated use of resources, such as through permits to harvest resources in parks or reserves, became instituted as a rule.

Map 2: National Parks in Mainland Tanzania



Source: TANAPA <http://www.tanzaniaparks.com>

Management for conservation of fisheries and the marine environment, in general, and its graduation to the present regime of MPAs, has evolved from a largely State-centralized system to the present, relatively inclusive, approach that encourages the community, the private sector and other non-State actors to participate in development (MNRT, 1997).

Historically, concern about the fisheries intensified after Tanzania's independence in 1961, when the government reconstituted the fisheries sector, instituted State control through a licensing system and expanded production. Research on the fisheries potential in the country, conducted in the 1950s and 1960s by the then East African Fisheries Research Organization (EAFRO, now the Institute for Marine Sciences, IMS) enabled the government to emphasize increased fishing effort, which brought in large extractors to coexist with the traditional, small-scale and artisanal fishers who had unlimited access, but operated with rudimentary technology and low output. Intensified fishing effort developed with heavy investments by foreign investors in areas such as prawn trawling. Lack of adequate financial and human resources, however, plagued the sector, challenging its capacity to maintain effective management activities, and rendering critical new approaches to fisheries management (Bulayi, 2001; MNRT, 1997). Degradation of the marine environment, and an incessantly poor fishing population, meant that State-controlled management, with intensified extraction, did not necessarily transfer into people's improved welfare.

Similar thinking, albeit in a more liberalized economic framework, has recently opened up the Lake Victoria fisheries to export production of the Nile perch, creating competition and frequent conflicts between large producers and the less-resourced small-scale operators, and also leading to significant social and economic impacts on the surrounding communities. Conservation of inland fisheries is currently the subject of major resource-management initiatives, and has resulted in projects such as the Lake Tanganyika Biodiversity Project (LTBP), 1995, and the Lake Victoria Environment Management Project (LVEMP), 1996.

The establishment of MPAs was initiated in Tanzania in the 1960s (Francis et al., 2002), informed by scientific research on the abuse of the environment by unsustainable extraction methods such as dynamite fishing and live coral harvesting. In 1974, the government designated as marine reserves, the four islets of Kitutia, Chole, Maziwi and Latham, and the three islets that make up the Dar es Salaam Marine Reserves (namely, Mbudya, Bongoyo, Pangavini and Fungu Yasini). The lack of resources, expertise and a clear vision on management for conservation of marine areas hampered these initial initiatives, until the promulgation of the Marine Parks and Reserves Act (for mainland Tanzania) in 1994, which revealed, for the first time, a committed direction by the government to organize MPAs. In 1995, MIMP was declared as Tanzania's first marine park, followed by the Mnazi

Bay-Ruvuma Estuary Marine Park in 2000. In 1998, the closure of Upangu Reef, Kitanga Reef and Dambwe Reef to fishing activities was made by a Government Order (G.N. No. 625 of 1998). These developments arose from experiences in the terrestrial environment, but whether such initiatives have managed to balance human development with concerns about the environment is moot, and is something that this study seeks to analyze.

MARINE PARKS IN TANZANIA

Tanzania has two types of MPAs, namely, marine parks and marine reserves. Mainland Tanzania has two marine parks and 11 marine reserves, while Zanzibar has four conservation areas (see box). In addition, there are several integrated conservation areas that combine land- and sea-based resources³.

About 8.1 per cent of the continental shelf of mainland Tanzania has been designated under marine parks, with commitments to expand the area to the 10 per cent target by 2012 (Wells et al., 2007).

Box: Marine Parks and Reserves in Tanzania

- Dar es Salaam Marine Reserves, which comprise Bongoyo, Pangavini, Mbudya and Fungu Yasini, and were gazetted in 1975, and Mwakatube, Kendwa and Sinda islands, which were gazetted in 2007
- Maziwi Island, 1981
- Nyororo, Shungumbili and Mbarakuli marine reserves, 2007
- Chumbe Island Coral Park, Zanzibar, 1994
- Mafia Island Marine Park (MIMP), 1995
- Menai Bay Conservation Area (MBCA), Zanzibar, 1997
- Mnemba Island Conservation Area, Zanzibar, 2002
- Misali Island Conservation Area, Pemba, 1998
- Mnazi Bay-Ruvuma Estuary Marine Park, 2000

The major difference between the MPAs in mainland Tanzania and those in Zanzibar is in their type of management. Mainland Tanzania has all of its MPAs under government administration, albeit with significant international donor funding, while the Mnemba Island MPA and the Chumbe Island MPA in Zanzibar are run by the private sector, and the other two are managed by NGOs. In general, most of these initiatives have been State-directed, State-organized processes; none is locally driven, but some incorporate local communities as participating entities.

Questions about local ownership, participation in decisionmaking on management issues, and benefiting from conservation have, therefore, often been raised (Leria, 1998; Levine, 2003; World Bank, 2005).

POLICY AND INSTITUTIONAL FRAMEWORK

In terms of management structures, Tanzania has a well-developed policy and institutional framework to oversee the development and administration of MPAs. Those in mainland Tanzania are established under the **Marine Parks and Reserves Act No. 29 of 1994** to further the objectives of protecting particular areas of scenic, scientific, historical or other importance, according to Section 8(2) and Section 10 of the Act. The Act has two overriding objectives:

- to protect, conserve and restore the species and genetic diversity of living and nonliving marine resources as well as the ecosystem processes of marine coastal areas; and
- to ensure that communities and local users of resources are facilitated to engage (through education and information sharing) in the planning, development and management of an MPA, and that they share in the benefits of the operation of the PA, and have priority in the resource use and economic opportunities afforded by the establishment of the marine park or reserve.

The day-to-day administration of the MPAs is co-ordinated by the MPRU of the Fisheries Division, which monitors the control, management and administration of parks and reserves, and organizes for financial inputs for their running and development, which may include managing or granting concessions or licences to other persons to operate businesses and services for recreation or tourism purposes, part of the revenues from which accrue to the MPA concerned. Since the collection of local revenues and rents for most of Tanzania's MPAs is still a moot issue, most are supported by significant international donor funding, except, perhaps for the privately run initiative of Chumbe Island, which claims to have successfully been able to meet conservation and related expenditure from local revenue (World Bank, 2005). All MPAs are required to adopt a general management plan (GMP) (according to Section 14 of the Marine Parks and Reserves Act) that outlines the granted activities, rights, licences, titles, interests, franchises, leases, claims, privileges, exemptions or immunities specific to the MPA (Section 13(1)). According to the regulations, the preparation of the GMP is supposed to involve the village councils of affected villages in the enactment of regulations or zoning of areas, although the Minister for Livestock Development and Fisheries⁴ has the final say on what activities to permit or restrict within the park or reserve.

The Marine Parks and Reserve Act No. 29 of 1994, and the Marine Parks and Reserves (Declaration) Regulations of 1999 (G.N. No. 85 of 1999) are the basic legislative documents that guide the operations of marine parks in mainland Tanzania. These instruments operate within the context of national environmental and fisheries policies that provide the general framework for the protection of natural resources and the fisheries sector, in particular, as well as outline the roles and responsibilities of community members/fishers regarding use of resources. The **Fisheries Act of 2003** is currently the main piece of legislation guiding the fisheries industry and MPAs. This Act provides regulations for the general purposes of protecting, conserving, developing, regulating or controlling the capture, collection, gathering, manufacture, storage or marketing of fish, fish products and aquatic flora. The periodic amendments to fisheries regulations in accordance with changing socioeconomic contexts are also central instruments in terms of national policy direction regarding the fisheries. They stipulate user requirements, which include licensing with an annual fee tag, use of specific gear, and the role of local authorities in fisheries management (URT, 2003). Management of the inland waters, has, in addition, the **Fisheries (Inland Waters) Regulations of 1981** as a governing instrument.

Other key documents include the **Fisheries Master Plan of 2002**, which outlines a 10-year strategy to develop a sustainable fisheries sector that will primarily benefit the fishing community through capacity building. In it, strategies for the development of aquaculture, and the improved export and marketing of fisheries products, are mentioned. The **National Environmental Policy (1997)** is the main governing instrument for the general protection of the environment and its natural resources. Coastal and marine fisheries management is also an integral part of the **National Integrated Coastal Management Strategy (2003)** that outlines a general framework on sensitivity to the coastal environment, and sustainable use and development of resources in relation to economic growth. Most documents display a degree of sensitivity to gender and women's empowerment by supporting their activities in the fisheries.

For Zanzibar, the overall mandate for PAs lies with the Ministry of Agriculture, Natural Resources, Environment and Co-operatives (MANREC). Three legislative instruments provide for PA establishment. These are the **Environmental Management for Sustainable Development Act (1996)**; the **Conservation Area, Reserves, Parks and Sanctuaries Act**; and the **Fisheries Act of 1998**.

In principle, communities also have a role in fisheries management through the country's system of decentralized governance. There are community-based structures such as beach management units (BMUs) and village environmental

management committees, which can draw up bye-laws to oversee fisheries management at the local level, and whose mandate of operation lies within village boundaries. Overall, therefore, albeit on paper, people, as local resource users, have been identified as the principal beneficiaries and custodians of any fisheries management effort. The requirement for all MPAs to adopt GMPs through a participatory process is another indication of the commitment to ensure people's involvement in the management of resources (URT, 2000). In practice, however, there has been an overriding imbalance in decisions about how management practices should be effected, and how benefits should be redistributed among the stakeholders of the marine environment. This study analyzes how such people-oriented ideas about resource management work out in actual practice.

THE MAFIA ISLAND MARINE PARK: A CASE STUDY

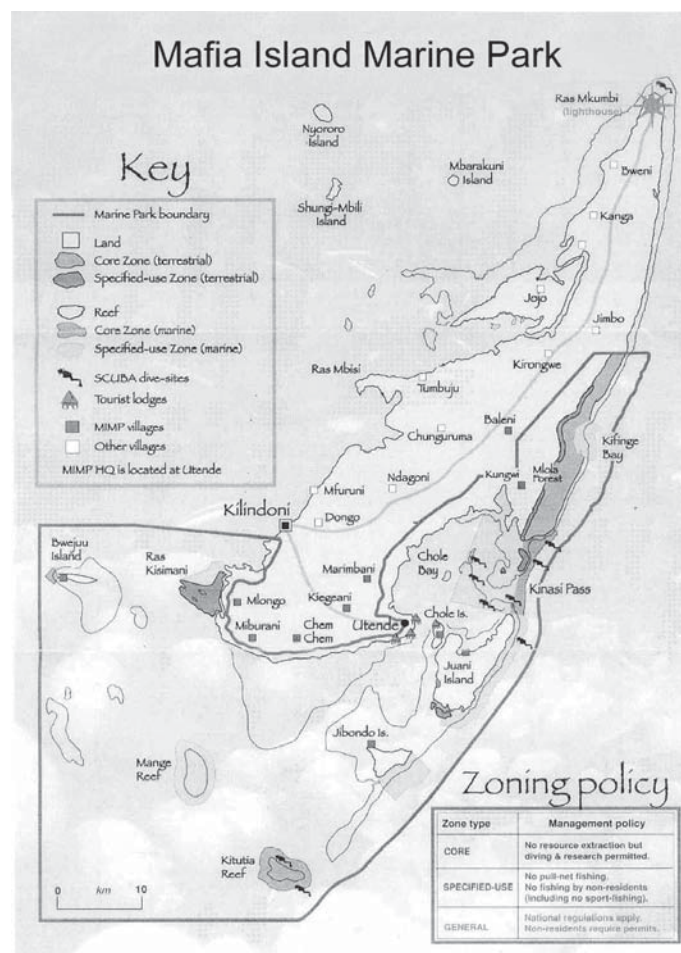
MIMP lies within the boundaries of the Mafia Island administrative district, off the coast of Tanzania's mainland, approximately 120 km south of Dar es Salaam, the largest city, capital and business centre of Tanzania. The district is 20 km offshore from the eastern extent of the Rufiji delta, one of the largest delta systems in Africa. Mafia District comprises several islands—the main island of Mafia, which is about 48 km long and 17 km wide at its widest point, and several smaller islands, which are scattered to the west and south, some of which are uninhabited, but serve as temporary shelters for fishers.

Mafia's population enjoys considerable heterogeneity in terms of people's places of origin, owing to its historical connections with traders, maritime activities and decisions by the government to relocate people to the island. The majority of people are related to the Wambwera from the mainland, while many claim connections with the Shirazi people of Persia, yet others with the Wayao and Wanyasa from the mainland; in addition, there are many migrant fishers from Pemba and Mombasa (Wagunya), and there is currently an increasing influx of fishers from the southern Tanzania mainland, including Wamakonde people.

Among the most recent migrants are people from northwest mainland Tanzania, who have settled in the northern part of the island⁵. The population growth rate for the district is, however, low, at 1.5 per cent annually, compared with the 2.9 per cent national average. The population has grown from 23,101 in 1978 to 33,054 in 1988 and 40,801 in 2002. The estimates for 2005 were 42,870 (Mafia District Planning Office, December 2007). The lives of Mafia people have traditionally been closely related to the sea, although, according to the Mafia District Planning Office, 60 per cent of the district's population is dependent on agriculture and livestock breeding, while 40 per cent depend on fisheries. Yet, Mafia's District Development Director reiterates the predominance of the fisheries sector, saying,

“Almost 75 per cent of food for Mafia’s population is purchased from outside the district.” This implies that most of the households are not self-sufficient in food crop production⁶. The decline in the economic prominence of agricultural crops like cashew nuts and coconuts from the 1980s onwards, is one of the major factors influencing people’s current heavy reliance on fisheries. Most people’s livelihoods actually combine activities of both agriculture and fisheries, with different seasonal emphasis, along with other activities such as handicrafts and trade.

Map 3: Boundaries of MIMP



Source: GMP, Mafia Island Marine Park

However, while the island is renowned for its rich marine environment and coastal ecosystems, and great biodiversity, about 42.6 per cent of Mafia’s population lives below the poverty line (URT, 2005). Mafia’s per capita income is TShs120,000

(approx. US\$120), compared with the national average of TShs290,000 (approx. US\$290) (2002 estimates).

Opportunities to diversify into other livelihood ventures such as agriculture have been limited by poor soil, and significantly low capital investments, making subsistence farming insignificant in most areas, while the isolated geographical location of many of the communities, in terms of transport infrastructure, and the inadequacy of investment capital, have hindered the development of business-oriented enterprises, such as trading in fish products. The overdependence on fisheries is, therefore, unavoidable. Women, who have traditionally concentrated on the collection of octopuses or lobsters during the low tide, complain of intrusion by men who employ superior but destructive extraction methods to edge them out of their traditional activity (Bryceson et al., 2007). Some of them have benefited from the relatively recent introduction of seaweed cultivation, predominantly a woman's activity, and other income-generating projects on a small scale (Ruebens and Kazimoto, 2003).

A similar picture of dependence on the fisheries is found in the rest of coastal Tanzania and around the major water bodies, where it is estimated that about 1.3 mn of the rural population are directly employed in the fisheries sector. Many more earn their living from fisheries-related activities, such as processing and trading in marine products. Of these, about 40,000 artisanal fishers are estimated to operate in the coastal and marine environment (World Bank, 2005). While estimates about poverty among these communities remain relatively determined, its severity is compounded by issues of access to resources, and the capability to engage in sustainable resource extraction that would result in livelihood benefits. In many parts of Tanzania, pressure on the fisheries has, therefore, stimulated the use of destructive fishing practices, which, as with the Mafia experience, demands management intervention, leading to the creation of parks like the MIMP.

MIMP covers an area of 822 sq km, and is located between 7°45'07"S and 8°09'40"S latitude and 39°30'00"E and 39°54'01"E longitude. It is on the southeast of Mafia Island. The park is geographically located in a naturally ecologically endowed area that facilitates the nurturing of unique habitats. Its species richness is correspondingly high for the region, and studies have recorded over 400 species of fish, five species of marine turtles, 48 genera of scleratinian corals, seven species of mangrove, 12 species of seagrass and 134 species of marine algae (Ruebens and Kazimoto, 2003). The park's area is also central to people's livelihoods. It currently covers some of the most lucrative traditional fishing grounds of local people. MIMP has incorporated 11 of Mafia District's 20 villages within its programme, some of which are the smaller islands of Chole, Juani,

Jibondo and Bwejuu⁷. The most recent figure indicates that about 18,000 people reside within MIMP's boundaries, mostly in traditional fishing communities; half of them depend on exploitation of the marine environment for food, income and other resources like mangroves and coral, for sustenance. Another 10-15 per cent have traditionally relied on extracting various resources from the sector of the Mlola forest, whose southern part lies within the park's boundaries (MIMP, 2007a).

The importance of fishing as a source of livelihood varies between these communities, depending on location and/or the presence of other natural endowments such as suitable land for agriculture. Fishing is a significant source of livelihood for the island communities of Jibondo, Juani, Bwejuu and Chole, and less so in the other villages within the park that can combine fishing with other activities like agriculture and petty trading. Jibondo Island, for example, a tiny area covering 4.5 sq km, which by 2006 had an estimated population of 2,000, is largely comprised of coral rag, unsuitable for crop production, and can maintain only minimal stocks of animals. People's livelihoods are, therefore, largely dependent on fisheries, with seaweed farming being a significant alternative source of livelihood. However, fishing is still the major source of income for the other communities, albeit seasonal to some (URT, 2000; Bryceson, 2007).

Initiatives for protecting the marine environment around Mafia Island were first conceived in 1975. Studies initiated by IMS and Frontier-Tanzania, a British non-profit research and conservation organization, provided information that led to the Department of Fisheries gazetted two marine reserves, Chole Bay and Kitutia Reef, which are located within what has traditionally been among Mafia's best fishing grounds (Andrews, 1998). After a lapse of several years because of management inadequacies, some time in the 1980s, the World Wide Fund for Nature (WWF) began supporting conservation measures, and initiated a community-based programme in Mafia, employing all management staff until 1995, when the marine park was formally gazetted by Parliament (Ruebens and Kazimoto, 2003).

The ensuing consultative process that led to the establishment of MIMP followed considerably later, and was essentially top-down, with the involvement of people being through village representation. Evidence of this can be found in how differently village government authorities and the rest of the population explained the processes relating to the establishment of the park and the benefits accrued so far. Initially, in the early 1990s, a series of meetings to inform government leaders from the 11 villages were held, at which several management strategies were introduced, including zoning of critical areas; prohibition of destructive

fishing practices, particularly the use of dynamite and beach-seines; banning the harvest of live coral; and controlling migrant fishers. Among the key issues raised at the meetings was the right of resident fishers to access fishing grounds, a right that was negotiated *vis-à-vis* the use of approved gear. The anti-dynamite fishing proscription was received positively by the local communities, many of whom detested what was regarded as outsider influence (Andrews, 1998), while the proposal to ban coral mining was found to be socially problematic, since the local people have historically depended on corals for the production of lime for construction of houses and for sale; coral mining was thus one of the major sources of livelihoods for the community.

Information about establishing the park was subsequently disseminated to the rest of the communities through village meetings. During the course of this study, the communities complained that the boundaries of the park were communicated to them as already having been fixed, and the compliance of residents was solicited only later. Informants claimed that feedback from earlier discussions was not articulate. Residents were made to accept that conservation regulations were inevitable and, therefore, they had to mould their ways and “fit into the process”, without their doubts and questions being satisfactorily answered (meeting at Jibondo, December 2007). One Kiegeani villager explained this lacuna as arising from the “low education and low communication capacity of the village leaders to be effective information disseminators”. As a result, incomplete messages about agreements were often communicated to the people. During the course of this study, some of the park’s management admitted that, at some of the initial community meetings, disagreements between village leaders and community members about consenting to MIMP regulations had frequently risen. Thus, though MIMP has been effectively in place since the year 2000, and although interactions between the park management and the people have been more frequent since then, attitudes of dissent still prevail.

The park has not yet been able to generate enough revenue to be totally self-sustaining, but it has been able to inject significant resources into community-based activities, such as providing loans for fishing equipment and businesses, and strengthening social-service facilities and opportunities. The main sources of funds for the period 2006-07 included the government (retention funds), the Marine and Coastal Environment Management Programme (MACEMP), the Norwegian Agency for Development Co-operation (NORAD), and internal and conservation funds for specific tasks approved by the board of the park (MIMP, 2007). The park also generates revenue by directly charging each visitor a gate fee, part of which is channeled into park management costs, while a percentage goes to the district

authority as well as for development projects for villages within the park. Local residents do not have any direct financial input in the running of the park.

Regulations and activities related to the park's management touch directly on people's lives, influencing their attitudes, perceptions and responses towards MIMP, even more than the process that led to the institution of the park. Its GMP, which was officially launched in 2000, after a series of workshops and consultations held since the early 1990s (Andrews, 1998; Ruebens and Kazimoto, 2003), provides the general framework for the management of fisheries. The GMP has eight key objectives:

- to conserve biodiversity and ecosystem processes;
- to promote sustainable resource use and rehabilitate damaged resources;
- to ensure community participation in management, and community access to resources;
- to develop appropriate ecotourism;
- to promote community education and information sharing;
- to develop underutilized resources;
- to conserve the cultural resources of Mafia Island; and
- to engage in monitoring and research.

Every village government in MIMP has a translated copy of the GMP document, and a great deal of literature and posters about conservation. Yet, probably due to the lack of a culture of literacy in most rural areas in the country, these documents are usually not consulted. During interviews, local people expressed reservations about the use of the GMP, referring to it as *"vitabu vya sheria vilivyoko ofisi ya kijiji"* ("regulation documents available at the village offices"). Some of them said though they do not consult them, they know that the documents provide regulations for the use of the marine environment, such as prohibition of access to certain fishing grounds, and prohibition of destructive fishing methods and harvesting of live corals.

MIMP's management philosophy is based on an integrated, multi-user approach that accommodates three levels of use, namely, conservation and research, tourism and livelihood sustenance (URT, 2000). This multi-user approach has been instrumental in attracting the activities of conservation and research and academic institutions, while foreign-owned tourist establishments and foreign visitors constitute the bulk of the stakeholders in tourism as the MIMP area becomes more widely known for its attractions. Within this three-level use system,

Table 1: Stakeholders in the MIMP Fisheries

Category	Stake	Interest in MIMP and conflict areas
Local populations: men, women and youth. Village governments.	Residents and highest stakes. 11 villages within the boundaries of MIMP recognized as resident users. Maintaining access rights to traditional fishing grounds.	Management complicated by encroachment into restricted areas, relationships with migrant fishers and traders. Competition for extraction of lobster, octopus, between men and women.
Fish processing companies, industrial fishers.	Includes Tanpesca Ltd., a seafood processing company of the Alpha Group, which has boosted the local market and local people's harvest of octopus and lobster.	Their presence is through 'agents' who are basically collectors. They provide employment, equipment, but also opt for prohibited practices such as diving for lobster, etc.
Fish traders	Mostly traders from Dar es Salaam. Mafia is said to supply about 70 per cent of fresh fish to the Dar es Salaam fish market of Banda Beach.	Purported to provide seine nets (<i>mtando</i>), boats and engines. These business people are also said to instigate defiance against fishing regulations, taking advantage of political divisions.
Immigrant and seasonal fishers	High influx of small-scale fishers from Mtwara, Dar es Salaam and Zanzibar, and the itinerant Kojani who capitalize on village government weaknesses and an uncooperative populace have allowed this influx, especially outside MIMP boundaries.	Historical fishing connections, intermarriages. Many practice intensive fishing that is usually destructive, sometimes in collaboration with MIMP residents. The Kojani use the purse-seine, which drags indiscriminately and destroys sea-bottom habitats.

people's livelihood sustenance is, of course, the most contested aspect, as MIMP brings together a range of stakeholders in the traditional fishing grounds, who include the local communities, migrants and seasonal fishers, fish traders and industrial fishing establishments. Their interests and areas of conflict are summarized in Table 1.

The traditional social organization of the local fisheries dictates how the industry has been organized in defined vertical and horizontal social groups, based on the type of fishing activity, or on ownership of fishing gear or capital. Hook-and-line fishers coexist with mechanized vessels using shark nets, as well as boatowners (*matajiri wa vyombo*), net owners (*matajiri wa nyavu*), fish traders (usually not locals), and fishers (*vibarua*) who are almost entirely male. Women are concentrated in the fish-processing sector, and in retail trading in the villages. Children are often also found doing odd jobs like cleaning fish along landing sites.

Although competition is not so pronounced locally, it has been magnified by the influx of traders and migrant fishers, and by the current emphasis on export of marine products. In January 2008, the Mafia District Council issued a directive prohibiting the use of the seine-net, and insisting that migrant fishers should leave once their fishing permits expired⁸. Such a situation calls for a more local, people-sensitive management approach that affords protection from competition. MIMP's GMP does mention recognizing and maintaining people's rights to the fisheries, especially in terms of the need to minimize tensions resulting from regulating access to, and use of, resources. Two of the stipulations that address these aspects are:

- to ensure the integration of local residents' indigenous knowledge with scientific knowledge in the planning of sustainable resource-use practices (URT, 2000); and
- to document traditional fishing grounds and traditional and contemporary tenure rights, and incorporate them into fisheries management planning, harmonious with the objectives of sustainability and biodiversity conservation (URT, 2000).

These stipulations illustrate the government's commitment to people's livelihoods, albeit in writing, which marks a significant departure from the conventional understanding of environmental management. To put in effect a multiple-use approach, MIMP has instituted several management strategies, whose implementation has been instrumental in affecting people's capacity to maintain their livelihood practices. The strategies are:

- establishment of village structures;
- zoning of fishing areas;

- certification of resident users;
- gear-exchange programmes; and
- alternative-livelihoods programmes.

People in the area participate in MIMP management processes through two village structures—the village liaison committee (VLC) and the village enforcement unit (VEU). These grassroots structures should have been able to enhance, over time, local people’s capacities to willfully engage in resource-use planning and management by strengthening their powers to take decisions about resource use. However, they had not been developed locally as grassroots-based structures for articulating, negotiating and making demands on behalf of residents as partners in management. In effect, therefore, the VLCs end up implementing plans that have already been outlined in the GMP, and, until lately, there have been no opportunities for villages to develop local fisheries management plans themselves; resident communities are thus mere passive ‘recipients’ of the MIMP GMP, rather than active participants in planning and management.

Although, as a structure under the village government (VG), the VLC members are elected at a village council meeting, the VLC enjoys closer links with the MIMP management than with the VG leadership, since MIMP provides support in terms of facilities, equipment and training. When MIMP enjoyed direct donor funding, the VLC used to get a monthly allowance, but since 2005, that has ceased, leading to complaints from some VLC members who viewed the allowance as a right. Most VLCs boast better office buildings than the VG, and often accommodate VG leaders in MIMP-supported structures, which sometimes causes resentment.

The VEU, on the other hand, interacts closely with park rangers, and usually monitors malpractices in the marine environment. The MIMP management has supported the VEUs with bicycles, hi-fi radio transmitters and other gadgets to facilitate their work, which has enhanced enforcement practices around the MIMP area. However, VEU members seem to regard enforcement more as a duty that they have to perform, rather than an obligation to manage and conserve resources. The planning of patrol activities occurs at the level of MIMP management, and is not a joint effort involving villagers. This has probably been done to avoid any information ‘leaks’ to residents, which could thwart enforcement operations, but the lack of consultation certainly undermines participatory management. Some VEUs are quick to report the illegal activities of outsiders, but not those of their fellow locals, especially if the offenders are relatives who indulge in practices that are condoned by other fishers. Should action be taken against them, the MIMP rangers are often criticized for acting on skimpy information, and not investigating incidents thoroughly before apprehending fishers. The park management, on

its part, claims that only strict enforcement will deter habitual offenders. In an interview at Kiegeani in February 2007, a MIMP ranger said, “Habitual offenders need to be apprehended by strict measures. When you enter into dialogue with them, and try to make them appreciate the value of sensitive extraction practices, they do not comply with regulations. And when you strictly enforce rules, they are the first to complain of being victimized”. Although destructive practices like dynamite fishing have been completely eliminated within MIMP’s boundaries, the use of beach-seines and coral mining continue. The park management blames this on the shortage of human resources for efficient surveillance of all the critical areas within the park.

At present, MIMP’s conservation and law-enforcement efforts are effectively ensured through significant material support to the VLCs and VEUs. In the absence of vibrant fishers’ organizations, fishing communities in the MIMP area lack a forum to make demands, and promote or defend their interests, unlike other agricultural and pastoral communities. One outstanding exception is the NGO called the Southern Zone Confederation for the Protection of the Marine Environment (SOZOCO-MAE), popularly known as ‘*Shirikisho*’, which was formed in 1974. SOZOCO-MAE has proved largely effective in rallying the local communities of Kilwa, Lindi and Mtwara Districts against dynamite fishing in the area. Its formation was facilitated by the Rural Integrated Programme Support (RIPS) project, then operating in the southeast of Tanzania. SOZOCO-MAE later extended its mandate to other issues related to the protection of the coastal and marine environment, and also began promoting community-based livelihood alternatives, especially for the groups that were affected by the cessation of the practice of dynamite fishing (NEMC, 1998).

The zoning strategy has been one of the issues drawing the greatest attention of the residents of MIMP. Generally, as a resource-conservation strategy, zoning has had different implications, often restricting access to resources, and creating new discourses or interpretations of people’s social and spatial relationships to the environment (Francis, 2002). In effect, MIMP’s zoning plan has categorized the park area into three fishing zones (see Map 3):

- the core zone, in which no resource extraction is allowed, but where diving (snorkelling) for tourism purposes and research is permitted;
- the specified-use zone, where permissible fishing gear is specified, and fishing (including sport fishing) by non-residents is prohibited; and
- the general-use zone, where fishing is allowed, but where non-residents require a permit to fish. Dragnets and fishing nets with a mesh size of less than 2.5 in are not permitted here.

According to the MIMP management, the core (no-take) zone occupies hardly 1.3 per cent of the total MPA area, and comprises the reefs of Kijiwe Nyara, Kitutia, Chole, Kinasi and others. These areas have the richest coral ecosystems⁹. In comparison to other conservation parks in mainland Tanzania, all marine reserves (29.2 sq km) and national parks (66 sq km) are no-take areas, including the Saadani National Park, which has been gazetted under protected-areas legislation. On Zanzibar, three of the MPAs have very small zones that are closed areas. In Tanzania as a whole, therefore, a total of about 0.7 per cent of the continental shelf is closed to fishing (Wells et al., 2007).

Local Mafia fishers recognize the value of the core zones as sensitive feeding and nursery grounds for fish, and have all along depended on them for fishing. Zoning is not an entirely new concept for Mafia's fishers, who have long been used to seasonal closures and access restrictions. According to the GMP, the aim of zoning is to ensure that critical habitats are protected, and the pressure on the specified-use zone is reduced, but in a manner that gives resident fishers priority of access to certain areas. According to MIMP officials and some village leaders, the idea of zoning was introduced to community representatives—and agreed upon—early in the process of establishing the park. However, the physical demarcation of the core zones by buoys, which began in 2001, led to resentment by some communities that had initially participated in the discussions leading to the establishment of MIMP. This was particularly the case with the Jibondo community, most of whom initially rebelled by defying the regulations and accessing the Kitutia fishing grounds in December 2001, which led to arrests by the law-enforcement authorities. Later, they openly refused to participate in the zoning activity, and physically threatened MIMP officials. After considerable resistance from local fishers, marker-buoys were eventually placed around the Kitutia reef in April 2003 to mark the no-take area.

The core zones, referred to locally as '*maeneo tengefu*' ('exclusive areas'), are perceived by residents as being too restrictive. None of the community members interviewed for this study agreed to restricted resource exploitation in the core zones. In an interview in December 2007, the members of a VLC in Kiegeani, claimed that for MIMP to win people's committed consent, it needs to consider how people traditionally regulated access and extraction of certain resources during specific times. One respondent claimed, '*Maeneo ya uvuvi ni madogo, na wavuvi ni wengi, kwa hiyo watu hawafaidiki na kufunga maeneo.*'" ("The fishing areas are small, and there are too many fishers; therefore, people do not benefit from closed areas.")

The introduction of resident user certificates (RUCs) was another management aspect designed to identify and regulate use-patterns and fishing effort, and, at

the same time, protect the rights of access for resident communities. Access to the fisheries is permitted only with the use of appropriate fishing gear. When questioned, most resident fishers expressed indifference towards the RUCs, though they acknowledged that the certificates assured access to fishing grounds within the specified- and general-use areas. In 2001, the Jibondo community returned most of their RUCs to the park management to underscore their opposition to fishing regulations. That act cost them their freedom to fish within the park's areas, and their members have since been playing a cat-and-mouse game with the park's rangers. According to district officials, the situation remained unchanged as of February 2008, raising concerns about the community's ability to earn a meaningful livelihood¹⁰. The ongoing conflict with the park's authorities over conservation issues has left Jibondo village without a VLC, the important link to the MIMP management (MIMP, 2007).

In terms of access, RUCs do not imply exclusive use since MIMP villages can accept seasonal or itinerant fishers with valid fishing licences, who pay a TShs1,000 (approx. US\$1) fee per day for permission to fish within the boundaries of the park. To fish beyond the park, the itinerant fishers have to seek permits from the District Fisheries Office. Resident fishers complain that migrant fishers bring in prohibited gear. During the period 2005-06, 101 fishing permits were issued to non-resident fishers, while 13 were issued for the period 2006-07 (MIMP, 2006; MIMP, 2007).

Mafia's link with outside fishers is historical owing to the open-access nature of the sea, and intermarriages, which are common. Of late, though, migrant fishers have been accused of taking advantage of village government weaknesses to acquire resident status and use that as a loophole to practise destructive fishing¹¹. The resident fishers pointed to seasonal and itinerant fishers as the culprits of the prohibited seine-net fishing, but local people who join these fishers, earn additional income. Fish traders from Dar es Salaam, for instance, are not viewed with suspicion or resentment, since they provide employment. As one Jibondo fisher explained, "*Wenyewe wanatoa nyavu, mashine na boti. Tajiri anateua nabodha na sie tunakuwa wafanyakazi.*" ("They provide fishing nets, engines and boats. The owner appoints a skipper and we become workers on their boats.") Such a relationship between owners of fishing equipment and the many property-less fishers is typical of the artisanal fishing industry. A study in early 2007 established that six of the fishing boats in Jibondo village had local skippers who were contracted by Dar es Salaam traders. Hardly anyone regarded these traders as intruders, and they operated under the traditional Mafia fishing arrangements.

The lobster and octopus fisheries, which have attracted processing and allied companies, have created jobs for a few local people but have also indirectly permitted the consistent abuse of regulations. Some fishers confessed to collecting undersized lobsters and octopuses, and resorting to prohibited harvesting techniques, such as snorkelling, to make a fast buck. Early this year, the district government, working on a tip-off, apprehended illegal fishers with 12 gas cylinders, believed to have been filled at Utende, within MIMP boundaries, which were to be used for diving for lobsters. The cylinders were confiscated at Kilindoni but the culprits escaped¹².

Harmonizing the activities of different stakeholders within a multi-user approach has thus been challenging for both the MIMP management and the resident communities. Monitoring fishing efforts and landing statistics also becomes quite tricky, given the plethora of users. In addition, conflicts between different users, particularly between local fishing efforts and tourism-related activities, are increasing, with each sector viewing the other as an intruder. Diving and snorkelling by tourists, which is concentrated around the reef areas, was reported to be increasing and competing for space with fishing activities. Complaints by hoteliers to the park management about local residents' "intrusion" give the impression that tourists feel that their spaces are being violated. From meetings in Kiegeani in December 2007 and in Juani in January 2008, it is clear that resentment is brewing among local fishers who complain that sometimes "arrogant" tourists destroy fishing gear such as nets. MIMP resident communities and fishers, in particular, thus feel pressured by forces beyond their control, finding their livelihood pursuits being limited, on the one hand, by restrictions and, on the other, by competition, which they almost certainly cannot overcome.

The gear exchange programme and the alternative livelihoods programme allow the park management to compensate residents for the resource-use restrictions and their attendant implications on livelihood sustenance. The zoning plan and related regulations have mostly affected the livelihoods of households using destructive fishing gear. The official objective was to reduce pressure on the marine environment through diversification into new income-generating activities or by reducing the use of destructive fishing techniques (URT, 2000). The gear exchange programme was directed at fishing groups that were willing to give up prohibited gear such as seine-nets. They were given interest-free loans or equipment on credit. Three of the groups in Jibondo who benefited from the gear exchange programme between 2004 and 2006 received between TShs5 mn (US\$4,413) and TSh15 mn (US\$13,239). These include the Zinduka fishing group (TShs14.3 mn or US\$12,621), Maendeleo ya Wavuvi, Jibondo (TShs5 mn or US\$4,413) and the Chicha fishing group (TShs5.7 mn or US\$5,031). Members of these beneficiary

groups regard the gear exchange programme as instrumental in sustaining their livelihoods, even as accusations of favouritism in the selection of beneficiaries were aired by other people.

Doubly disadvantaged are the hook-and-line fishers, who were purposefully excluded from the gear exchange programme because their fishing technique was assessed as not destructive to the environment. The park management admits to this lapse, and says that future support to fishers will be more holistic and will try to cover fishing groups using different gear¹³.

Attitudes towards the alternative livelihoods projects, whose target groups were resident fishers and women's groups who traditionally earned income from the fisheries and related activities, also differ, depending on the benefits people have gained from diversification. Since 1997, training and material support to sustain alternative occupations have been going on, including for beekeeping and honey production, handicraft production and sales, seaweed cultivation, and production of alternative house construction material (to reduce demand on live corals and trees). The local people initially doubted the effectiveness of such diversification initiatives, feeling that *"wanataka kutukataza kuvua kama tutafanikiwa"* ("They want to restrict us from fishing..."). Many thus resorted to passive resistance. MIMP officials claimed that as a result, some of the groups that had received support to establish alternative activities remained inactive, while others went back to fishing. However, the number of participants has been increasing over the years. Yet, the overall coverage remains limited, with only a few people getting meaningful benefits. Table 2 summarizes the alternative livelihood activities, average total production, and incomes realized.

As Table 2 reveals, the individual incomes from these activities are meagre, and they cannot necessarily substitute for fishing or fishing-related activities. The biggest challenge in successfully sustaining some of these activities is to secure a ready market for products, both locally and outside Mafia. A woman in Utende, for instance, complained of the "slow-moving" doormats they made, which discouraged membership in the group.

Alternative livelihood activities, even where successful, have not always been regarded as compensation for fishing, which is still considered the activity that brings in the highest returns. This opinion was particularly strong in the small islet of Jibondo, where fishing and related activities are the major, if not the sole, source of livelihoods for many households. Although some MIMP villagers on the main island can combine agriculture and fishing, the latter activity still remains of primary interest. A fisher in Kiegeani said in December 2007, "We would have gone back to fishing if we had more efficient fishing equipment."

Table 2: Alternative Income-generating Activities, 2000-2006

No.	Activity	Year	People involved	Average (total) production	Income realized (TShs)	Income per individual (TShs)
1	Beekeeping (honey production)	2000	43	200 (l)	40,000	930
		2006	150	750 (l)	225,000	1,500
2	Seaweed farming	2000	117	38,600 (kg)	4,632,000	39,590
		2006	2000	200,000 (kg)	44,000,000	22,000
3	Handicrafts (mats)	2000	-	-	-	-
		2006	120	360 (pieces)	1,800,000	15,000
4	Lime production (from terrestrial fossil/corals)	2000	-	-	-	-
		2006	12	400,000 (kg)	2,860,000	238,333

Source: Mgeni, A R. MIMP CCA Livelihoods Report, March 2007

There were other problems associated with diversification of livelihood activities, like the restrictions on using live corals for house construction. A youth in Kiegeani explained, “We are forced to use dead corals, but such corals take up too much firewood to be converted into lime, and the final product is not of good quality and is smaller in quantity than what we can produce from live corals.” The other materials preferred for construction, such as cement, are expensive. A bag of cement in the village sells at TShs20,000 (approx. US\$18). The response to the alternative building materials project has thus also been very poor.

In such a context, the prevalent feeling is that much of what is done by MIMP is imposed upon the people. A member of Kiegeani village contended that the VLC members receive more intensive training and are more systematically involved

in management activities than others. In contrast, the other members of the community are simply told about MIMP activities at meetings, making informed participation and consent difficult. In 2007, the park management organized a study tour for a few people to Mozambique to learn about the management of core areas in natural reserves. A Kiegeani villager who participated in the tour claimed, however, that Mozambique's no-take zones are smaller in size than Mafia's.

Table 3: Destructive/Unlicensed Fishing Activities within Mafia's Waters, 2003-2007

Year	Activity/Offence	People/fishers involved and caught
2003	Fishing without licences	12 fishers
	8 vessels fishing using beach-seines	n a
	Fishing without licences	1
2004	109 pieces of dynamite found	1
	Dynamite fishing	1
	Dynamite fishing in the Tumbuju area	5
2005	Trapping dugongs	2
	Non-Mafia fishers fishing without permits	98
	Fishing without permit in Tumbuju	Culprits escaped
	Collision between 2 boats competing in <i>mtando</i> fishing	n a
	Fishing without licences	600
	1 vessel from Kilwa fishing without permit	n a
	9 vessels from Pemba fishing without permits	n a
	1 vessel from Kilwa without permit using beach-seine	n a
2006	Large vessel spotted fishing at Bweni within Mafia's waters. Apprehended but claimed to have a permit from the Director of Fisheries.	n a
	Whale shark hunted with clubs and machetes	18
	5 sardine vessels from Kilwa fishing without permits	n a

...contd. on page 25

...Table 3 contd. from page 24

Year	Activity/Offence	People/fishers involved and caught
	3 vessels from Pemba fishing without permits	n a
	Tourist vessel <i>MV Kairos</i> fishing without a permit	n a
	Turtle trapped at Mfuruni	Some fishers
	2 vessels using prohibited seine-net	42 people
	5 boats from Dar es Salaam fishing without permits	n a
	Collision between 2 vessels during <i>mtando</i> fishing	n a
2007	1 boat fishing without permit	n a
	Killing of whale	n a
	1 vessel engaged in dynamite fishing at Jojo	Culprits escaped
	Fishing without licences	55 people
	2 turtles trapped	15 people
	2 vessels using beach-seines	n a
	500 kg of juveniles (<i>chaa</i>) impounded at Kilindoni	Culprits escaped
	Fishing without licences	4, fined TShs56,000
	Dynamite fishing at Nyololo	Culprits escaped
	250 kg of fish caught by beach-seines	Some fishers

Source: Mafia District Fisheries Office, December 2007

Despite its several contested social implications, the MIMP processes have been credited with establishing a 'model' of conservation with strict enforcement and forced compliance, which has, in turn, generated significant ecological value. However, in practice, conservation seems to be an isolated intervention whose measures are felt more within the park's boundaries. The strict implementation of regulations within MIMP has shifted pressure to abuse the fisheries beyond the park's boundaries. Table 3 summarizes some of the violations of fishing restrictions discovered in the recent past by the district fisheries personnel outside the MIMP area, often with the help of MIMP enforcement units.

The high rate of incidence of violations of regulations recorded outside MIMP does not necessarily imply that MIMP residents themselves are all innocent. A resident of Kiegeani, for instance, commented, “It’s easy for many people to claim compliance with fishing regulations at meetings, and claim not to contravene rules within MIMP, but some MIMP residents also fish outside MIMP’s boundaries and engage in any kind of fishing techniques they want to.” Despite being aware of the dangers of inappropriate fishing practices, these MIMP residents are equally culpable of abusing the environment. The MIMP management acknowledges the challenges in being strict with enforcement. Sometimes, according to one fisheries official, to minimize the feeling of being pressured to conform to regulations, the management feels compelled to take a more humane and softer attitude towards offenders, especially when they are just eking out a living, trying to make some income for the day.

According to MIMP’s annual reports for 2005-06 and 2006-07, several incidents of unsustainable resource-use practices within the park area have also been unearthed by random patrols by rangers. In the period 2005-06, for example, eight dragnets were impounded, one gillnet and four boats, and the 30 fishers involved were brought before the court (MIMP, 2006). For the period 2006-07, 22 mangrove logs, 250 kg of cowry, four pull-nets (*mtando*), five pieces of mosquito-net-like gear (*tandios*), one beach-seine, two shark nets, four tonnes of fossil corals, one 15-hp engine, one boat, four sets of diving equipment and 16 diving tanks were impounded (MIMP, 2007:3). Several of the people apprehended in these cases were fined (MIMP, 2006; MIMP, 2007)¹⁴.

Inter-generational knowledge gaps, the increasing influx of people into the MIMP settlements, and the different types of fishing practices have all combined to generate a gamut of ideas about how to practise sustainable extraction of resources. The traditional role of the communities’ elders, who used to reprimand those who contravened environmentally sensitive fishing regulations, has eroded as changing social values and mores prioritize material benefits over conservation. An elderly hook-and-line fisher in Jibondo village, for instance, explained that fishers like him have no reason to ignore conservation regulations although their fishing practices have no ill effects on the marine environment. However, the youth, most of whom were quite young when MIMP activities were initiated, are prone to using destructive fishing techniques. During a feedback session at Kiegeani in February 2008, one of the participants explained that the prohibited spear fishing, locally known as *mchinji*, is now increasingly being used within the park, and is seemingly condoned by residents. He said, “*Chewa ataisha kwa sababu ya mchinji au msumari ya kuchokoa anapoenda pweza, na wanatumia wanachi wenyewe.*” (“*Chewa will be finished because of the mchinji and msumari used to catch octopus.*”) This

complaint reflects the fact that irresponsible fishing continues even within MIMP. Women feel that they are victims of competition from men created by market demand for marine resources such as lobster and octopus.

Despite varying interpretations of conservation regulations and their implications for maintaining a meaningful livelihood, the fishers in MIMP demonstrate a strong desire to cling on to their relationship with the sea. This explains why they would like to maintain and protect their access to the fisheries and their rights to the marine environment, and why they feel they should benefit from the fisheries and be acknowledged and incorporated in management strategies. On the part of MIMP, the major challenge is how to ensure that, within a multi-faceted context, the park's strategies facilitate and enable local residents and fishers to be the primary beneficiaries of conservation and management programmes. Some experiences are discussed below.

Access to the fisheries: Zoning is the most controversial issue. Firstly, local fishers argue that zoning has redefined their access to the fisheries, interpreted as the capacity to fish where they want, and based on their local understanding about the best places where fish are located. However, they also believe that “if you have the right gear, you can fish anywhere”. Yet, in the absence of adequate capacity or support to acquire more efficient gear, many households have not been able to benefit meaningfully from redefined access norms. In this context, the influx of fish traders, who have allowed Mafia fishers to access the fisheries, and fish more efficiently, albeit sometimes with prohibited gear, is being tacitly welcomed because, as one Jibondo villager said in a December 2007 interview, “they provide engine-powered boats and beach-seines, with which people can access the fisheries, and earn good incomes in a short time, while MIMP insists on regulations, and speaks only about potential future benefits.”

The inability of MIMP strategies to accommodate traditional knowledge into management practice, despite being mandated in the GMP, also affects access and ownership. The annual seasonal changes have induced people, especially the elderly, to engage sequentially in land-based and marine-related activities, which allow for stock replenishment in the traditional fishing areas. Tidal variations, influenced by the lunar cycle, have conditioned the local people to fish periodically. As one of Jibondo's elders explained, “During low tides, we cultivate; during high tides, we fish. We are content with the (natural) law that exists.” However, some scientists and managers brush away this relationship as a mere coincidence and an influence of the weather, rather than being based on any scientific principles of resource generation. With their rudimentary fishing gear and vessels, the fishers cannot, in any case, set out to sea during rough weather, and can only access sheltered

places. The local fishers, however, fail to see why modern science, which they view as rigid, should alone strictly influence conservation plans and strategies, while excluding their own concerns and perceptions about what is important in resource management.

The right to fish: Regulations on resource extraction have had the biggest impact on the local people's right to access the fisheries. Some of the fishers interviewed explained how they have had to change the way they relate to the traditional open-access system, which has now been pitted against the zoning programme, and, at the other extreme, the no-take category of the core zones. Some of the fishers view the demarcation of boundaries in the abstract sense, arguing that the rules should permit fluidity in movement, and not be restrictive or prohibitive. Thus, although MIMP has effectively been in place for seven years now (disregarding the initial years between 1994 and 2000, when the GMP was drawn up), it is common to still hear voices of dissent in the MIMP area, which denounce the impropriety of setting rules for using the sea, which is synonymous with the lives and livelihoods of the people of the area. Being peripherally located and not naturally endowed with land suitable for food-crop production, and hampered by poor communication infrastructure, Mafia Island offers special challenges for the population in meaningfully engaging in alternative income-generating activities. For households with low incomes and few other options, the sea and its related endowments are thus very central to their livelihoods.

Also, being a heterogeneous community, the Mafia people's perceptions about identity and rights to maintain traditional access to the marine environment have been aggravated by the diverse needs and demands of different sections of the society, and also by local politics. Such social diversity has challenged the capacity of MIMP to satisfy, or respond to, the different stakeholders and their internal contestations. Firstly, there is variation in people's perceptions of the different MIMP zoning categories and their potential benefits. A group of Jibondo fishers, for example, had strong views about access to the Kitutia Reef, which is one of the no-take core zones. One fisher complained, *"Kinachotutisha ni kuambiwa tusiende pale tunapopatia maslahi, bila mbadala."* ("What disturbs us is to be told we should not go where we can make a living, without an alternative.")

Others were less pessimistic, one declaring, *"Watu wengine wabishi tu, mbona sehemu kama Manga, Kulunge, Lwala, Mwamba Mkuu zipo."* ("Some people are simply stubborn, because there are other (fishing) areas such as Manga, Kulunge, Lwala, Mwamba Mkuu.") Another one said categorically, *"Kitutia hatupataki, pweza wenyewe wameshaisha!"* ("We do not want Kitutia; (after all) the octopus is finished!")

Local politics have also divided most of Mafia's population into those supporting the ruling party, the Chama Cha Mapinduzi (CCM, the Revolutionary State Party), and the strongest opposition party in the district, the Civic United Front (CUF). The opposition has won favour in several villages of Mafia, has now permeated people's way of life, and their attitudes towards, or willingness to engage in, any development venture, claiming that State-led interventions interfere with their rights. Some community leaders have taken advantage of the situation, and have convinced people to gauge the extent of their democratic freedom by demonstrating how they can fish "without MIMP interference".

Benefit sharing: There are complaints about the delivery of certain social and material gains of the MIMP experience, such as loans for alternative income-generating projects, improvement in community services like water supply, school construction or expansion of healthcare facilities, and a MIMP-facilitated education sponsorship for secondary school children, which is of special interest.

One respondent from Kiegeani mocked, "Even some households that are not used to sending female students to secondary school benefited from MIMP support". Most of such support is partly attributed to the enhanced revenue collected from marine-related tourist attractions in MIMP. The park currently attracts about three-fourths of all tourists who visit Mafia. The number of tourists coming for swimming, sport fishing, sailing, wind surfing, snorkelling and diving, as well as to visit cultural sites and trails in the Mlola forest, has been increasing annually.

Table 4: MIMP Visitor Fee Statistics, 2000-06

Year	Tanzanians	Non-Tanzanians	US\$	TShs
2000	484	393	4,835	462,470
2001	1,091	79	10,913	810,922
2002	1,353	98	42,277	3,431,890
2003	90	1,380	45,097	7,496,250
2004	190	2,212	65,575	17,800,650
2005	132	2,593	74,930	18,293,750
2006	112	3,007	89,933	21,525,750

Source: MIMP Statistics Section, December 2007

By 2007, there were four tourist lodges located within the MIMP area; in the 1970s, there was just a single State-owned hotel, the Mafia Lodge. Kiegeani village now hosts the Mafia Island Lodge, and the Polepole and Kinasi Lodges, while Chole Lodge is located on Chole Island. A diving centre has also been constructed by an industrialist with ambitious desires of expanding business. In 2000, the park earned US\$4,835 from gate fees, and by 2006, the sum had risen to US\$89,933, as shown in Table 4.

Up to December 2007, TShs160 mn (US\$0.14 mn) had been spent on social-service infrastructure and support in the villages (MIMP, 2007a). Who actually benefits from tourism within the MIMP area, however, is a question that needs to be addressed. The multiplier effects to the communities from tourism development include creating some employment for local people, and contributing materially (usually in the form of cash) for local development projects, depending on the agreements between tourist establishments and the resident communities. Such arrangements are, however, not uniform, and depend on the discretion of investors. For example, in Kiegeani, the only village within whose administrative jurisdiction three of the four tourist hotels are located, village officials said they do not have any written documents that establish an arrangement for development collaboration¹⁵.

Currently, only one hotel has an agreement to contribute a percentage of its income towards development; but that hotel has created significant concern among the local communities over issues of land ownership and control¹⁶. With the MIMP management confining itself to environmental practices, it has no mandate to intervene over property issues, which the local people view as a great disadvantage. One person said, “*Wale si wanatoa kodi Serikalini.*” (“We pay taxes to the government.”) Evidently, people’s livelihoods, research activities and tourism projects are yet to be harmonized in Mafia. In the absence of legally backed powers to regulate and protect local people’s property, MIMP will always have to face accusations of having failed the people. Tourism projects within the park are almost entirely foreign-owned businesses, with the locals being confined to the periphery of the tourist markets for lack of expertise and organizational skills.

Fish catches within the Mafia area have been increasing but have not translated into improved local incomes. Statistics of fish landings at Kilindoni Bay, outside the MIMP area, show a rise in catches recorded, from 31,871 kg in 2000 to 356,311 kg in 2007 (see Table 5). Though the District Fisheries Office does not have the capacity to collect statistics at other landing centres, it believes that the situation at Kilindoni reflects the achievements of MIMP conservation efforts.

Table 5: Fish Landings at Kilindoni Bay, 2000-2007

S. No.	Year	Landings (kg)	Value (TShs)
1	2000	31,871	18,328,200
2	2001	29,160	14,394,900
3	2002	38,714	23,590,800
4	2003	41,216	25,320,400
5	2004	34,892	29,408,200
6	2005	43,529	42,092,900
7	2006	48,001	94,241,000
8	2007	356,311	47,400,048

Source: Mafia District Fisheries Office, December 2007

However, a more in-depth study on individual/household incomes needs to be conducted to determine whether local fishers have experienced any changes in their incomes from increased fish landings. A 2006 study established that a larger share of the income from Mafia fisheries go to vessel owners and fish dealers or middlemen, many of whom are Dar es Salaam traders, and about 70 per cent of the fish caught is sold at the fish market in Banda Beach, Dar es Salaam. Local fishers sell their fish at landing sites, where prices are low, and thus, in terms of cash income, they benefit comparatively less from Mafia's improved fisheries (Bryceson, 2007).

CONCLUSIONS: RESPONSIBILITIES AND RIGHTS OF LOCAL FISHERS

As a resource management intervention, MIMP has been both positive and challenging, as far as people's lives are concerned. To a certain degree, MIMP-facilitated efforts have indeed managed to generate compliance in promoting resource conservation by eliminating certain destructive fishing practices, particularly dynamite fishing, within MIMP's boundaries, although the use of ring-nets (*mtando*), and coral mining continue. Yet, the rigorousness of enforcement seems to be confined within MIMP's boundaries, in isolation from the larger fisheries context of Mafia Island and the country. Abuse of the marine environment continues beyond MIMP's boundaries, probably because of the limited mandate of MIMP to offer full-time support to the district's less resource-endowed patrol and enforcement infrastructure.

It is also important to emphasize how MIMP and related processes can protect local people's rights to benefit from conservation efforts, within the milieu of societal dynamics, multi-user policies and regulated access to the fisheries. The current social, political and economic diversity of MIMP's stakeholders—in terms of ownership claims, use practices and perceived understanding about the importance of resources, and how they should be managed—has generated significant contestations. In the absence of strong fishers' organizations in the MIMP area, there are few forums for resident fishers to articulate demands; many fishers end up raising complaints in an ineffective manner. As with most coastal fishing communities in Tanzania, Mafia does not have a vibrant local organizational structure to promote or defend the interests of its fisher population, unlike, for instance, pastoral communities in agriculture. An initiative to form a fishers' organization at Kilindoni, the district's administrative headquarters, may be one step to set right this shortcoming, but it demands considerable capacity building and negotiations. Currently, contestations about where people can fish and what gear should be allowed or prohibited surround the negotiations between fishers and leaders of the Kilindoni BMU, indicating that even among fishers themselves, a compromise on vision and objectives is not always readily feasible¹⁷.

Meaningful participation in resource management is necessary to empower resident fishers and communities to commit themselves to develop local resource-management plans, and act on them. As the park management prepares to review the current GMP, it needs to commit itself to a planning strategy that should commence at the village level, incorporating and respecting the specific desires of each resident community. This may reduce feelings about imposition by the MIMP

management, and minimize the heavy reliance on the management to bring about solutions or mobilize huge resources for the people. MIMP's experience with the GMP has indeed created dependence, a sense of irresponsibility and a lack of commitment by fishers and fishing communities alike in the participation of the park's management.

Understanding local contexts is also important. The dynamic social environment, inter-generational gaps, differences in economic capacities, the changing demands on marine resources, and local political contestations make the resource management agenda a particularly delicate one. Local MIMP residents feel that they are being pressured, and pushed into a context with no viable livelihood options beyond the sea. At the same time, there is also the danger of curbing rights to resources, which causes people to perceive themselves as victims, instead of beneficiaries, of management efforts. While it is indeed difficult to respond to every desire or need in its individual context, there has to be a more inclusive and systematic process of information sharing and dissemination, beginning at the stage of initiating ideas about forming an MPA, which will allow a diverse range of residents to engage in management planning. Some people in Mafia have conveniently used MIMP's initially selective nature of interventions to disassociate themselves from resource-management efforts, and do as they wish, contravening conservation regulations. A Jibondo resident asked, "Why don't they first ask us why we fish where we fish, and what regulations should be used to oversee how we fish where we fish?". Put simply, there is a need for MIMP to revisit some of its regulations, possibly making compromises that do not, in the process, damage people's commitments, but can, at the same time, facilitate their commitment to the health of the environment.

It is also necessary to understand how, within their diversity, people hold on to ideas about the sea as a common-resource pool, and how they think such resources need to be managed. Each group lays different claims on the same resource. It is thus necessary to appreciate the social and economic diversity of the resident population and outsiders, both in terms of ownership claims, user practices and perceived understanding about the importance of resources, how they should be managed, and the envisaged benefits to people and the environment (Chuenpagdee et al., 2002). Currently, MIMP's basic strategy has concentrated on residents, regarding migrant or itinerant fishers, traders, hoteliers and other users, as of secondary importance, and sometimes as intruders, which has only increased the lack of commitment to conservation and management of resources. Facilitating dialogue among these groups is necessary because all of them are stakeholders in effective resource management.

Finally, it is also important to identify and develop other potential arrangements that will allow people to use the sea, and lay claims to it, such as community-managed tourism, or aquaculture. How people can benefit from tourism also demands attention. People in and around Mafia Island still want to be culturally connected to the sea as part of their identities, irrespective of the challenges they face in terms of resource management.

Endnotes

1. The total territorial area of Tanzania is 945,234 sq km, comprising 942, 832 sq km of mainland and 2,400 sq km of Zanzibar (Unguja and Pemba).
2. These measures are stipulated by the Forest Conservation Ordinance of 1904 enacted by the German colonial government, and the later British Forest Ordinance (1921) and Land Ordinance (1923). The Wildlife Conservation (Game Reserves) Order of 1974, instituted in independent Tanzania, followed similar management approaches.
3. The Tanga Coastal Zone Management Programme is an example.
4. From March 2008, the Department of Fisheries was placed under the Ministry of Livestock Development and Fisheries, after a cabinet reshuffle separated it from the Ministry of Natural Resources and Tourism.
5. Unlike other migrants from mainland Tanzania who follow the fisheries, the groups from Unyamwezi have settled for agriculture.
6. Personal discussions with Mafia District Development Director, February 2008
7. MIMP's GMP indicates the park has incorporated 14 villages; in some cases, a few hamlets of a particular village have been included by virtue of their strategic location in the park area. See URT, 2000.
8. Mafia District Council Directive of Ref. No. MDC/F.20/2.Vol II of 11 January 2008. Mafia Fisheries Officer, February 2008.
9. Discussions with park manager, December 2007
10. The District Fisheries Officer was planning to convince Jibondo residents to re-apply for their RUCs in 2008.
11. Female respondents in Jibondo said that the newcomers who settled on the island after marrying and acquiring resident status were those with a frequent record of contravening MIMP regulations.
12. Pers. comm. with Mafia District Fisheries Officer, January 2008
13. Discussions with park management, February 2008
14. Marine Park Unit HQ, Dar es Salaam, March 2008
15. Discussions with Kiegeani village officials
16. Discussions with park management and local residents, February 2007
17. Discussions during Mafia feedback meeting at Kilindoni, February 2008

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SAMUDRA Monograph

The Social Dimensions of Marine Protected Areas: A Case Study of the Mafia Island Marine Park in Tanzania

As threats to the marine environment continue to remain high, and conventional resource-management techniques have been found wanting, marine protected areas (MPAs) are being seen as a tool to address the abuse and destruction of the environment. This study discusses the social dimensions of MPAs in Tanzania, using the case of the Mafia Island Marine Park and the socioeconomic, political and cultural contexts within which Mafia people live their lives.

Based on documentary surveys and interviews with residents of the island's villages, national government officials, and the park's management, the study puts forth several proposals through which traditional, small-scale and artisanal coastal communities can engage better in protecting the marine ecosystem and their rights.

This study will be useful for analysts, researchers, non-governmental and fisher organizations, and anyone else interested in fisheries, biodiversity, conservation, communities and livelihoods.



ICSF is an international NGO working on issues that concern fishworkers the world over. It is in status with the Economic and Social Council of the UN and is on ILO's Special List of Non-Governmental International Organizations. It also has Liaison Status with FAO. As a global network of community organizers, teachers, technicians, researchers and scientists, ICSF's activities encompass monitoring and research, exchange and training, campaigns and action, as well as communications.

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